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ENERGY RESOURCES CONSERVATION BOARD
Calgary Alberta

ALBERTA PRODUCTS PIPE LINE LTD. PERMIT TO CONSTRUCT A PIPELINE FROM EDMONTON TO CALGARY

Decision 80-30
Application 800440

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1 INTRODUCTION

1.1 The Application

Pursuant to The Pipeline Act, 1975, Alberta Products Pipe Line Ltd. applied for a permit to construct a pipeline to transport gasolines, diesel fuel, aviation fuels, solvents, and heating oil from a pump station in Edmonton located in legal subdivision 10, section 4, township 53, range 23, west of the 4th meridian, to existing facilities in Calgary located in legal subdivision 13, section 15, township 23, range 29, west of the 4th meridian. The proposed route is shown in Figure 1.

The proposed pipeline is a loop of an existing products pipeline. It would follow the existing right of way except for that portion through Edmonton where it deviates to follow the South Edmonton and Sherwood Park Restricted Development Areas (RDAs). This portion of the route is shown in detail in Figure 2.

1.2 The Hearing

A public hearing of the application took place on 23 and 26 September 1980 in Red Deer, with G. J. DeSorcy, P.Eng., N. Strom, P.Eng., and R. G. Evans, P.Eng., sitting.

THOSE WHO APPEARED AT THE HEARING

Principals and Representatives (Abbreviations Used in Report)	Witnesses
Alberta Products Pipe Line Ltd. (APPLE) J. Anderson	J. DeVai, P.Eng. R. Gunson, P.Eng. M. Buchett, P.Eng. J. Lawrence
County of Lacombe No. 14 (County) E. Koberstein	E. Koberstein
Daines Farms Ltd. (Mr. Daines) J. Daines	J. Daines
Paul S. Seiferling (Mr. Seiferling) P. S. Seiferling	P. S. Seiferling
Battle River Regional Planning Commission (Planning Commission) R. H. Botham	R. H. Botham
City of Edmonton J. Muller	J. Muller
Turbo Resources Ltd. (Turbo) D. Hart	D. Hart
Crows Nest Resources Ltd. (Crows Nest) J. Horachek, P.Geol.	J. Horachek, P.Geol.
Daon Corporation (Daon) T. W. Gallant	N. Winter T. McDougall, P.Eng.
Energy Resources Conservation Board staff (Board staff) K. Miller R. J. Allman, P.Eng. B. Hubbard T. Walden	

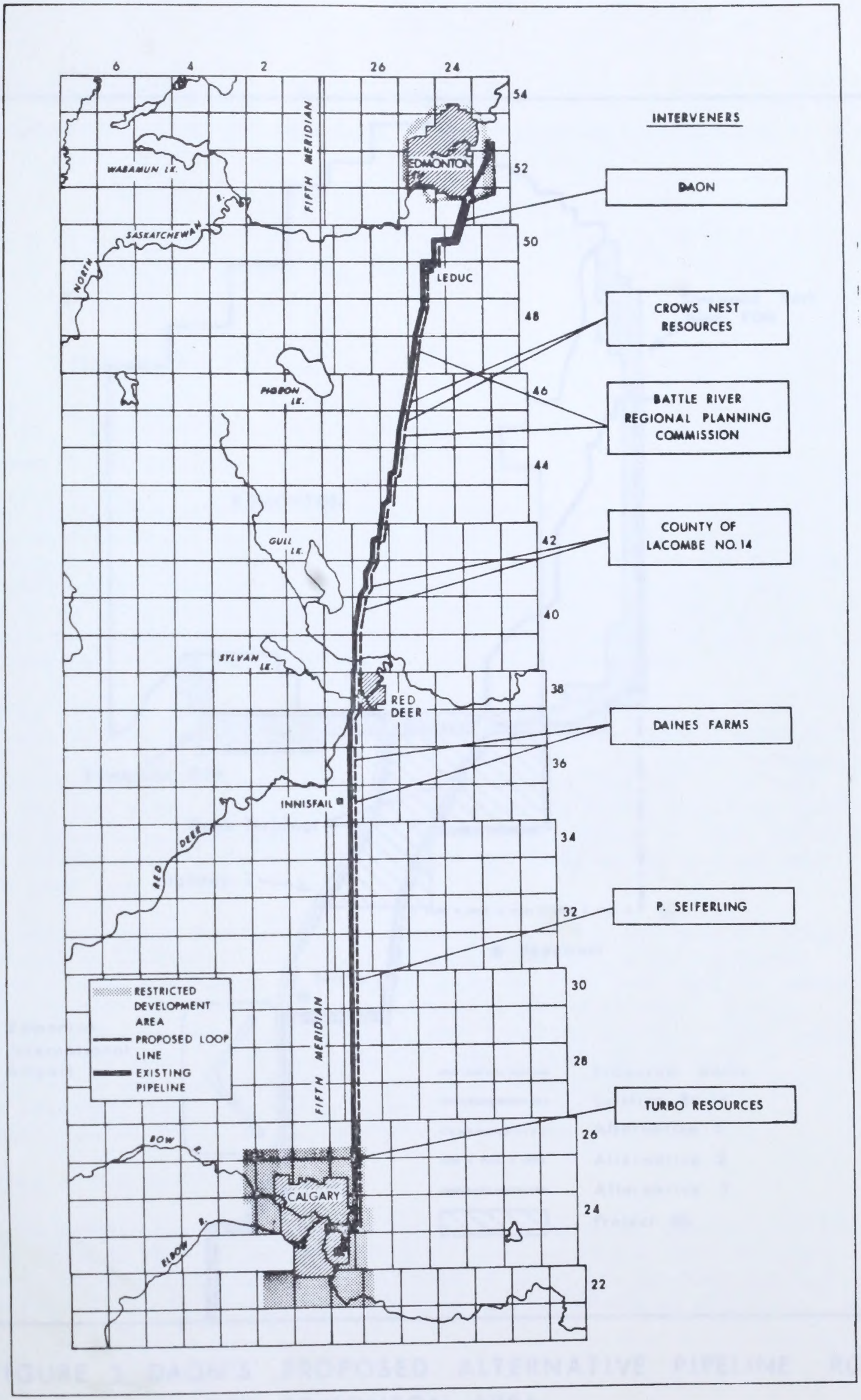

FIGURE 1 ALBERTA PRODUCTS PIPELINE-APPLE LOOP (EDMONTON-CALGARY)
APPLICATION No. 800440

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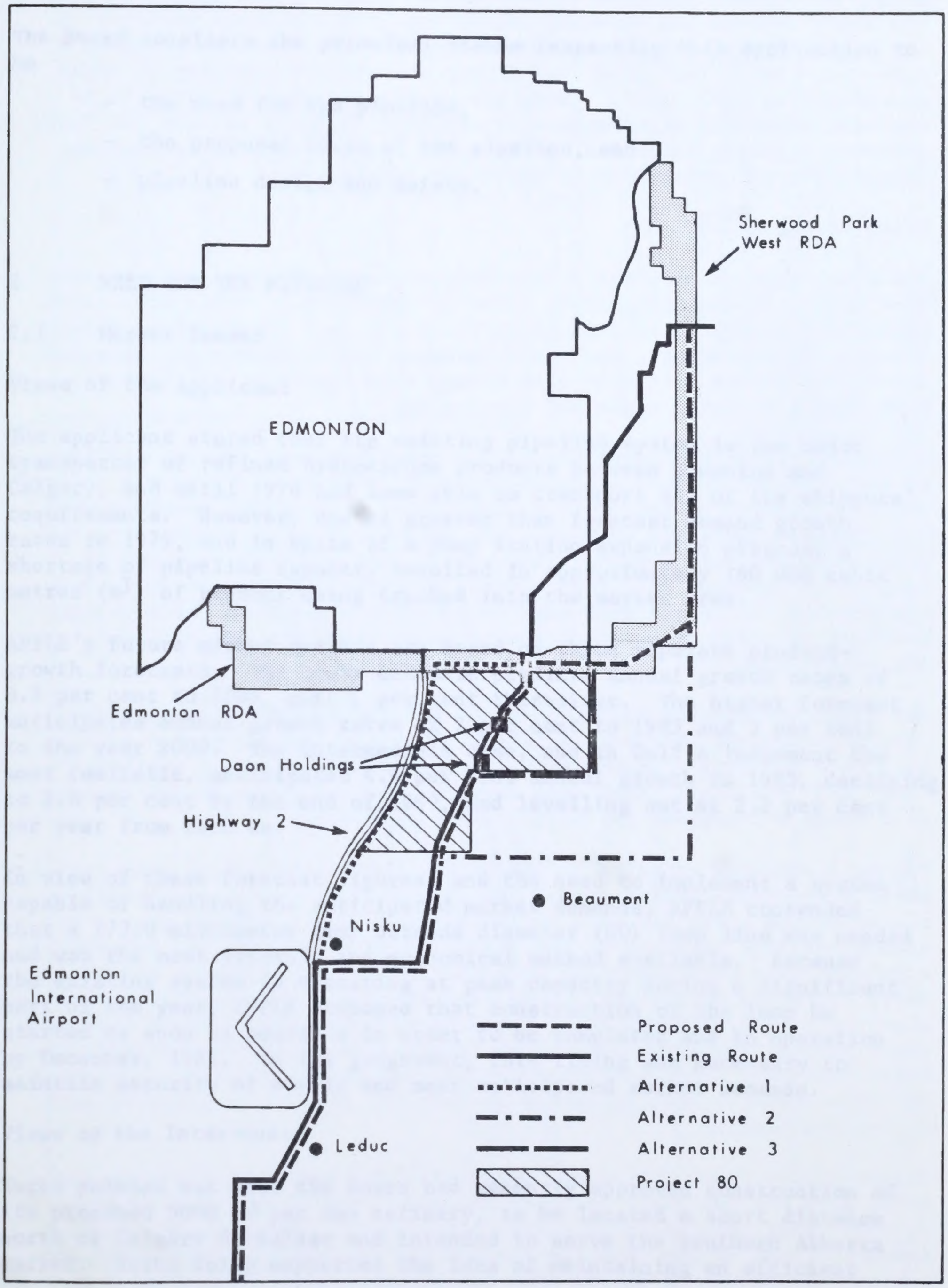

FIGURE 2 DAON'S PROPOSED ALTERNATIVE PIPELINE ROUTES IN THE EDMONTON AREA.

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1.3 The Issues

The Board considers the principal issues respecting this application to be

- the need for the pipeline,
- the proposed route of the pipeline, and
- pipeline design and safety.

2 NEED FOR THE PIPELINE

2.1 Market Demand

Views of the Applicant

The applicant stated that its existing pipeline system is the major transporter of refined hydrocarbon products between Edmonton and Calgary, and until 1978 had been able to transport all of its shippers' requirements. However, due to greater than forecast demand growth rates in 1979, and in spite of a pump station expansion program, a shortage of pipeline capacity resulted in approximately 160 000 cubic metres (m^3) of product being trucked into the market area.

APPLE's future market demands are based on three separate product-growth forecasts. The lower estimate predicts annual growth rates of 3.5 per cent to 1985, and 1 per cent thereafter. The higher forecast anticipates annual growth rates of 7 per cent to 1985 and 3 per cent to the year 2000. The intermediate case, and in Gulf's judgement the most realistic, anticipates 4.4 per cent annual growth to 1985, declining to 2.6 per cent by the end of 1989, and levelling out at 2.2 per cent per year from then on.

In view of these forecast figures, and the need to implement a system capable of handling the anticipated market demands, APPLE contended that a 273.0 millimetre (mm) outside diameter (OD) loop line was needed and was the most feasible and economical method available. Because the existing system is operating at peak capacity during a significant part of the year, APPLE proposed that construction of the loop be started as soon as possible in order to be completed and in operation by December, 1981. In its judgement, this timing was necessary to maintain security of supply and meet anticipated market demands.

Views of the Interveners

Turbo pointed out that the Board had recently approved construction of its proposed 5000 m^3 per day refinery, to be located a short distance north of Calgary at Balzac and intended to serve the southern Alberta market. Turbo fully supported the idea of maintaining an efficient supply of refined products to meet market demands, and suggested that the Board include the expected production from the Turbo refinery in its supply-demand balance when assessing the need for the proposed pipeline. Turbo indicated that it expects its new refinery to begin operations by early 1982. Turbo also contended that it would be in the best interests of consumers of refinery products to have the Turbo refinery capacity connected to the APPLE system, to provide optimum flexibility and efficiency in servicing the markets.

Views of the Board

The Board expects the rate of population growth in Alberta to be somewhat higher in the early 1980s than in the 1970s. While more rapid population growth would tend to increase the rate of growth in demand for petroleum products, the Board believes that conservation measures and higher prices will more than offset this tendency, particularly with regard to motor fuels and heating oil.

The other two major dimensions to the overall demand picture relating to the need for refined products transportation capacity to the general southern Alberta marketing area, namely the anticipated demand growth for aviation fuels and solvents, are relatively small compared to the gasoline and diesel demand. Thus, while they would be expected to respond to somewhat different stimuli than would the motor fuels and heating oil, it is not necessary to separately evaluate their growth patterns in order to estimate the necessary pipeline capacity into the market area.

The Board anticipates that the annual rate of growth in demand for refined petroleum products in Alberta over the 1980-85 period will be 3 to 5 per cent. Accordingly, the Board considers the applicant's "low" and "realistic" forecasts over this period to be in the reasonable range but regards the "high" case as unlikely.

Figure 3 compares capacity to demand for refined petroleum products in APPLE's specified market area. The figure shows that a supply deficiency exists today and will continue for at least another year. It also shows that start-up of the Turbo refinery in 1982 will temporarily eliminate this deficiency for both the low and intermediate growth cases presented by the applicant. The surplus supply available following start-up of the Turbo refinery would be very modest and would last only for a year or two depending on the growth in demand. Accordingly, the Board concludes that, even with the planned Turbo refinery, additional refinery products will be needed in southern Alberta to properly meet increasing demands.

Figure 3 also shows the supply which will exist if both the proposed APPLE loop and the Turbo refinery proceed. The figure shows that by mid-1982 when both projects would be operating, supply would exceed demand by some 35 per cent for the low and intermediate demand growth cases. The excess of supply over demand would decline to less than 5 per cent by the end of the 1980s. If the high demand case should materialize, supply would exceed demand only until about 1985.

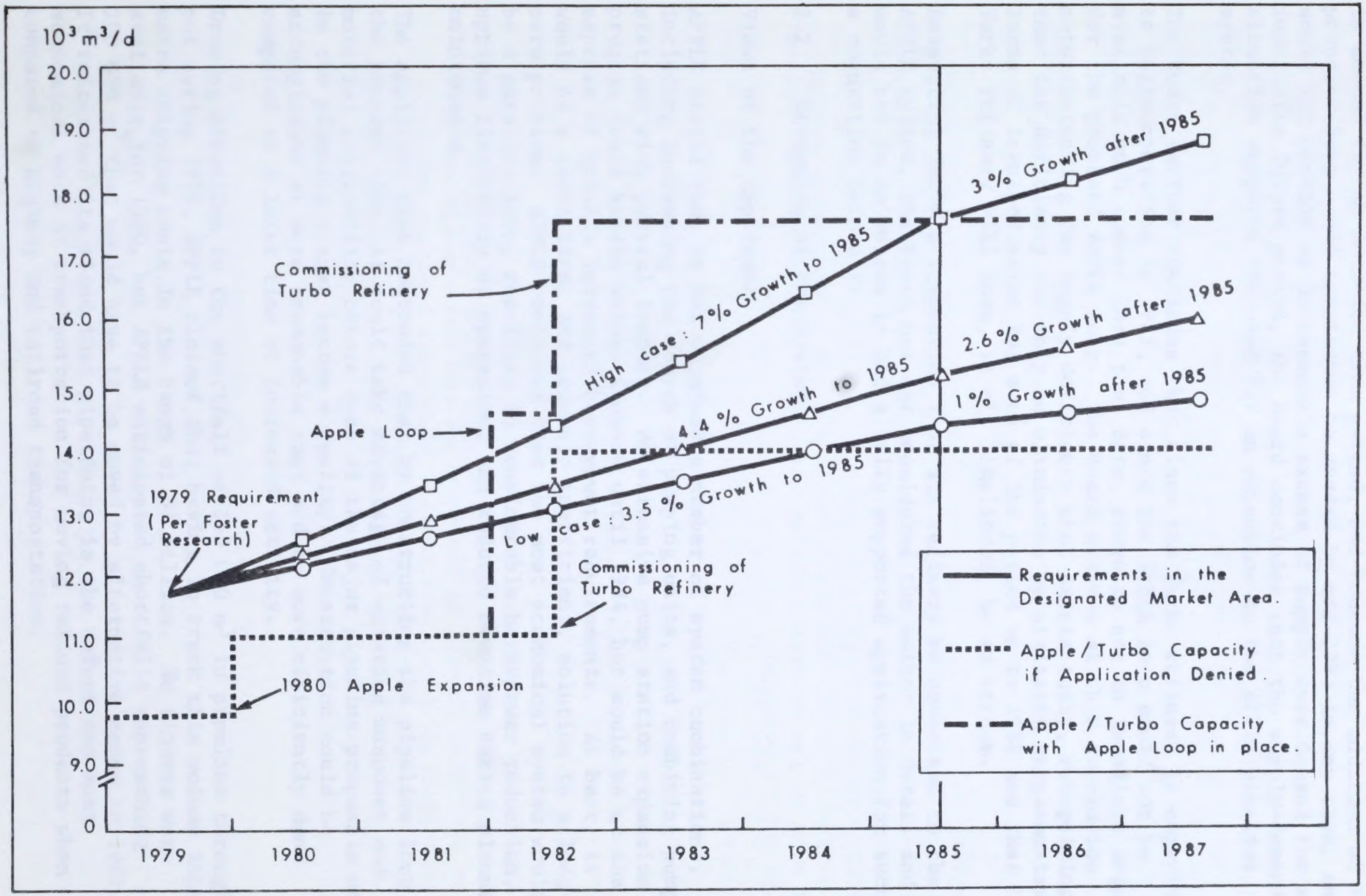

FIGURE 3 REFINED PETROLEUM PRODUCTS - APPLE MARKET AREA.

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Since the Turbo refinery alone will not accommodate expected growth in demand for an extended time period, and because the addition of the proposed loop would apparently be needed by mid-1983 in any case, and would not provide an unreasonable excess of supply over demand for an indefinite future period, the Board concludes that the supply-demand situation supports the need for an expansion to the APPLE pipeline system.

The Board further concludes that since the Turbo refinery is expected to begin operation in 1982, and since the APPLE loop could not be available much sooner than that date, there is not an immediate urgency for the proposed APPLE loop. The Board arrives at this conclusion notwithstanding the supply deficiency that exists today, recognizing that the deficiency can only be eliminated by utilizing supplementary forms of transportation for much of the period up to 1982 and that the Turbo refinery will then, in all likelihood, be on stream.

Respecting Turbo's suggestion that its refinery be connected to the APPLE system, the Board has not considered the matter in detail and would not do so unless it had a fully supported application for such a connection before it.

2.2 Economics of the System

Views of the Applicant

APPLE stated that it had examined a number of system combinations, including increasing the number of pumping units, and combining pump stations with partial looping. An extensive pump station expansion program could handle volume demands until 1984, but would be at the expense of greatly increased horsepower requirements. At best, it would be a short-term, and possibly inefficient, solution to a long-term problem. APPLE concluded that the most economical system would be a parallel loop, resulting in considerable horsepower reduction, optimum flexibility of operation, and reduced downtime during planned maintenance.

The applicant also contended that by constructing the pipeline loop at the present time, it could take advantage of existing manpower and material availability before some of the major pipeline proposals now in the planning stages become a reality. Construction could be accomplished at more reasonable cost and be more efficiently done compared to a later time of increased activity.

Drawing attention to the shortfall of 160 000 m^3 in pipeline throughput during 1979, APPLE claimed that having to truck this volume imposed extra shipping costs in the range of $1 million. No figures were available for 1980, but APPLE anticipated shortfalls approaching 200 000 m^3 that would have to be moved by alternative means in 1981. It reiterated its stand that pipelining is the safest and most economical mode of transportation for moving refined products when compared to highway and railroad transportation.

Views of the Board

The Board agrees with the applicant that for the volumes and distances involved, moving refined products by pipeline is the safest and most efficient mode of transportation. It has not attempted a specific comparison of transportation costs between Edmonton and Calgary, but is aware that road and rail costs tend to be several times higher. The Board further believes that on the evidence presented, a looped system offers economic advantages over pump station expansion. There would be a substantial reduction in energy requirements by virtue of reduced numbers of pump units, and the installation costs of a loop line would be considerably less than a full pump station expansion program. Additionally, a pump station expansion would represent only a temporary solution to the supply problem in that it, coupled with the planned Turbo refinery, would meet demand only until about 1986 or 87.

The contention by the applicant that construction of the pipeline now rather than later would result in reduced costs and a levelling of the manpower demand situation is, in the opinion of the Board, a reasonable one. By taking advantage of the current lull in larger diameter pipeline construction, and utilizing pipeline materials that might be in short supply later on, the Board recognizes that considerable savings may be made in the overall costs of the project, and significant social benefits may be achieved.

3 ROUTE OF THE PIPELINE

3.1 Use of Existing Right of Way

Views of the Applicant

APPLE stated that the new line would, with one exception through the Edmonton RDAs, follow the route of the existing pipeline in the same right of way, thus supporting the pipeline corridor concept and minimizing alienation of additional lands. Additional benefits would be to minimize interaction with populated areas, avoid conflicts with other underground utilities, and have little effect on the environment. The applicant also pointed out that it holds multiple-line easements for much of the existing right of way, and that in many cases only temporary working space would be required.

APPLE stated that the first 10 miles of the pipeline route south from the Edmonton Control Centre would be located within the Sherwood Park West and Edmonton South Restricted Development Areas, and that the actual alignments within these two RDAs were being finalized with Alberta Environment. The applicant believed that the route through the Edmonton RDA satisfied the multiple use concept of grouping pipelines, and that additional effects on the environment caused by the new line would be minimal. The exit point had been selected on the basis of the common route now followed by the present APPLE and Rimbey lines, and Alberta Environment had not objected to this proposal.

Concerning the Calgary RDA, APPLE stated that in discussions with Alberta Environment it was agreed by both parties that in the absence of a designated pipeline corridor within the RDA, it would be prudent to follow the existing pipeline route. The net effect would be to minimize conflicts with oil and gas facilities, communications, and adjacent land holdings. Discussions with City of Calgary officials had confirmed these plans.

Views of the Interveners

Mr. Daines stated that the applicant should not be able to put another line into its existing easement without first obtaining a further agreement from each landowner, even in those cases where it had a multiple line easement. He stated that it was unfair that certain lands had multiple line easements while adjoining lands had single line easements, and suggested that pipeline companies obtained the best deal they could without adequately informing landowners of options open to them.

Mr. Seiferling claimed that a second pipeline in the same right of way as the first would be the start of a utility corridor through his property, and could be an encumbrance against his land for an indefinite period of time. He stated that the looping would extend the life of the system and if approved, should be subject to a limited life. He also argued that the second line should be located along the eastern edge of his property in order to avoid adding to a land-levelling problem that the first line has created. This would put the line into a location with substantially more topsoil than the present right of way, and less damage would be done to the production capacity of the soil along the eastern edge. Such a route would also interfere less with certain development plans he has in mind.

The County was opposed to the new line following the existing right of way through an existing gravel deposit, chiefly because of the effect it would have on future gravel recovery. The County preferred a location to the east that would circumvent the deposit, but indicated that it would consider other alternatives if they would allow unrestricted gravel removal in the future.

Crows Nest objected to allowing the loop line to follow the existing route through a major surface-mineable coal reserve. It cited the potential loss of coal resources in this instance if the pipelines are allowed to overlay the mineable reserve, and stated that these losses could be avoided if the existing line and the proposed new line were re-routed around the reserve. The intervener recognized that the existing route had been chosen prior to any knowledge of valuable coal resources in the area, but stated a belief that allowing another pipeline in the same right of way now would weaken the case to have them moved in the future.

The Planning Commission also had some concerns about two portions of the existing route, in one case involving the Ardley coal deposit, and the other close to a country residential subdivision and proposed dam site near Watelet Lake. It presented arguments supporting a location for the loop line adjacent to an existing pipeline operated by Dome Petroleum Ltd. (Dome), thereby minimizing future problems through the coalfield, avoiding the subdivision and avoiding potential effects on the dam.

Daon, supported by the City of Edmonton, opposed the part of the route that would diagonally cross an urban development area, known as Project 80, south of Edmonton. This area is shown in Figure 2. Daon stated that the proposed pipeline would constitute a danger to residents of the development, would start a pipeline corridor, and would cause land marketing difficulties in the vicinity of the line. It proposed three possible alternative routes around Project 80, shown in Figure 2, and suggested that the Board not approve the applicant's route until all reasonable alternatives through and around the area had been studied and considered.

None of the three alternative routes suggested by Daon favoured the exit location from the South Edmonton RDA proposed by the applicant. In two cases, the exit would be east of APPLE's proposal, and in the third it would be considerably to the west, adjacent to Highway No. 2. Daon also contended that future Government policies concerning a pipeline corridor through the Project 80 area could be unduly influenced by the route of the existing and proposed pipelines. It acknowledged that the existing pipeline would create a problem, and that it was in place when Daon purchased its lands. It contended, however, that a second line would make the problem much more difficult and reduce the chances of moving the existing line.

Views of the Board

The Board generally agrees with the applicant that the use of an existing pipeline right of way for a second line has the least land disturbance effect on the areas it passes through. It reduces land fragmentation, does not create a new right of way, and minimizes the amount of extra working space required during installation. The Board recognizes, however, that conditions along the existing route may change over the years, and that in certain instances re-routing may be required.

The Board considers the issue raised by Mr. Daines to relate to legal interpretation of agreements and to compensation. Such matters are beyond this Board's jurisdiction.

With regard to the problems raised by Mr. Seiferling, the Board is not convinced that re-routing the new pipeline around the high ground in the northeast corner of this property would improve the situation. It would not solve the problem of the existing pipeline, and would merely fragment his land further. The same conclusions apply to his request to have the new route shifted to the eastern edge of his property, although the Board acknowledges that a depth of topsoil problem may exist, and that special reclamation procedures should be utilized by Gulf. The Board notes that Mr. Seiferling was aware of the existence of the first pipeline right of way when he purchased the property. Bearing in mind the greater public interest, the Board is not prepared, as suggested by Mr. Seiferling, to limit the life of the pipeline, if approved. The Board notes that on-going maintenance and surveillance would ensure the long-term integrity of the line, and the provision exists in The Pipeline Act, 1975, for application to the Board to cause removal of a pipeline if future developments warrant such action.

Concerning the proposed pipeline route through the gravel deposit within the municipal jurisdiction of the County, the Board believes it would be reasonable to re-route the new line at this time to circumvent the deposit, and to consider a proposal for relocation of the existing line when it becomes necessary. The Board is of the opinion that the potential value of the gravel that could be recovered outweighs the additional cost due to re-routing the new line, and agrees with the intervener that full recovery of the gravel should not be hampered by additional encumbrances.

The Board agrees that the existing route overlies significant recoverable coal reserves leased to the joint venture partnership of Crows Nest and PanCanadian Petroleum Limited. It believes that the same conclusions reached with regard to recovery of gravel apply in the case of coal, and that the pipeline routing should be altered to avoid sterilization of recoverable coal. The Board notes that a Dome pipeline lies immediately to the east of the coal reserves and that an opportunity exists for the applicant's new line to parallel and possibly share this right of way, thereby avoiding a further encumbrance on the coal reserves. The Board believes the applicant should explore this possibility.

Concerning the part of the proposed route through a country residential area near Watelet Lake, the Board is not in favour of adding new lines through existing or potential subdivision areas when they can be avoided. In this case, the Board recognizes the existence of the present APPLE right of way, but also notes that this right of way is part of the abutting lots. The addition of another line would, in the Board's opinion, present a potential danger. Therefore the Board is of the view that the new APPLE pipeline should be re-routed around the subdivision, and suggests that the Dome route to the west would be a reasonable location for APPLE to consider. A route parallel to the Dome line due west of the subdivision would also take care of the problem of the proposed dam site on Watelet Lake. This matter was considered at a previous hearing[1] concerning the location of the Dome line, and Dome subsequently crossed the lake at a point that would not interfere with the proposed dam location.

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[1] ERCB Decision Report 77-5, 29 April 1977.

As stated earlier, the Board is not in favour of adding additional pipelines through existing or potential residential areas, and believes that such pipelines should be re-routed around them where possible. The Board accepts the evidence presented by Daon and the City of Edmonton that a major urban development south of Edmonton is inevitable. The Board believes that pipeline corridors through the area could create planning and safety problems that do not exist now. Consequently, even though the Board generally concurs with the applicant's proposed route through the South Edmonton and Sherwood Park West RDAs, it recognizes that this raises the question of a suitable exit location to the south. The alternative routes proposed by Daon bring this matter to the fore, and imply either an extension of the Sherwood Park West RDA or creation of a new exit/entrance corridor from the South Edmonton RDA. Keeping in mind the variety of alternative routes that are available for consideration around or through Project 80, the Board believes the public interest would best be served by giving further consideration to these possibilities. Accordingly, the Board is not prepared at this time to approve the proposed route in the immediate vicinity of Edmonton. The Board's conclusions in this regard are influenced by its view that the existing APPLE line north of the Project 80 area, through the Mill Woods area, should be considered for relocation. The Board expects the Project 80 area to eventually become an urban area similar to Mill Woods, and believes an acceptable location for the proposed line should be sought at this time rather than after the urban development has proceeded. The Board understands from evidence at the hearing that Daon and other principals in Project 80 are interested in investigating with the owners the possibility of also relocating the existing APPLE and other pipelines in the area.

3.2 Environmental Matters

Views of the Applicant

APPLE stated that the environmental impact associated with its proposed pipeline would be minimal. A surveillance of the existing pipeline route together with a study of environmental concerns led it to believe that a second line along the same right of way would, when compared with any other route, have the least effect on the environment.

The applicant presented evidence to show that a wide range of environmental concerns had been studied along the pipeline route, including the effect on wildlife, the topography of the land traversed, the stability of creek and river banks, special ecological areas, and cultural and historical sites.

Experience over the past 10 years with the existing APPLE pipeline route has revealed few environmental concerns, but minor erosion and some topsoil mixing was found and would be corrected. This was not expected to be a problem with the installation of a second line, and mitigative measures would be taken to maintain the integrity and stability of the environment along the route.

Views of the Interveners

Mr. Seiferling was concerned about the method of crossing the Little Lonepine Creek, and questioned the applicant about depth of burial under the creek bed and possible effects of the crossing on the creek itself. He pursued the matter of internal pipe-corrosion at the low point where it crosses the creek, and asked about the effectiveness of inhibitors to prevent such corrosion, and possible creek contamination, from occurring. Mr. Seiferling was also concerned about the mixing of topsoil and clays on his land, and the effect it might have on his farming productivity. In addition, he questioned the revegetation practices that the applicant had stated would be carried out.

Views of the Board

The Board notes that in response to questions respecting erosion that had taken place at the Battle and Blindman River crossings, APPLE indicated that any erosion to date had been minimal. APPLE also stated that steps would definitely be taken to correct the problem if they were warranted. Respecting the effect of river crossing construction on fish spawning, the applicant indicated that the Fish and Wildlife agency would impose specific time periods when such crossings could be made, and APPLE was prepared to schedule its crossings accordingly. This could have some bearing on the overall construction schedule for the line.

The Board accepts the environmental report submitted by the applicant and believes that the intended route is generally environmentally satisfactory. It bases this conclusion primarily on the history of the existing pipeline route, and the apparent absence of major environmental problems over that period of time. The Board notes, however, that localized erosion may have taken place at the Blindman and Battle River crossings, and expects that the applicant will take corrective steps if such is the case. The Board concludes that the applicant has given adequate consideration to the effect of the proposed pipeline on the environment, and that disturbance of it will be minimal.

The Board expects the topsoil mixing and revegetation problems raised by Mr. Seiferling to be handled by operator-landowner agreements, with associated compensation if warranted.

4 DESIGN AND SAFETY

Views of the Applicant

APPLE pointed out that it had considered a number of design alternatives to increase the present system capacity, ranging from a complete loop with the existing pump stations to a combination of partial loops and pump stations. It had concluded that from an economic and operations point of view, the optimum design would be a complete loop system with minor modifications to existing facilities. This would give the desired operational flexibility under emergency conditions, and minimize shutdown time during periods of planned maintenance. The system would be designed and installed in accordance with the latest pipeline standards, and a post-construction inspection of the line by means of an electro-magnetic tool would be conducted prior to the start of operations.

All the safety and security features that exist on the present pipeline would be incorporated in the new line, and in critical areas such as leak detection, additional ones have been planned. The applicant outlined a number of parameters that would indicate whether a leak had occurred in the system, and described the emergency shutdown procedures that would take place in such an event. At the present time, three separate computer programs monitor pipeline flows for volumetric imbalances and a fourth one, based on pressure variations, was planned as part of the new system. In response to questioning by the Board, APPLE admitted that some shutdown situations could be discretionary on the part of the operator but these would be mainly during indications of a small leak. A flow discrepancy of any significant size would result in an automatic partial or complete system shutdown depending upon the circumstances. To supplement the leak detection program, APPLE outlined a number of system surveillance methods that would be used, including aerial and ground surveys, facility checks, and evidence of product loss other than through the monitoring equipment.

The location and installation of main line block valves was considered by the applicant to be an important factor in minimizing potential product-loss and evnironmental disturbance. Remotely controlled block valves would be located at all major river crossings, pump stations, diversion stations and receiving terminals, and would be supplemented by manually operated isolating valves and check valves at strategic locations.

APPLE explained that external corrosion protection of the new line would be provided by polyethylene wrap and a cathodic protection system - the latter monitored on a monthly basis. Internal corrosion would be mitigated by inhibitors, and the effectiveness of the prevention would be monitored by product sampling and corrosion coupons. Routine mechanical cleaning of the pipeline interior would occur on a yearly basis.

The applicant also described a number of other safety considerations it deemed pertinent, namely reduced system operating pressure because of the looped line; separation of selected products into two lines, thereby allowing better control of flashpoints and product degradation; batch tracking to know the location of each product in the system at all times; and design of the system to accommodate periodic internal inspections by an electro-magnetic tool.

In response to questioning about the safety precautions to be taken during construction alongside the existing line in Calgary, APPLE stated that its prime concern would be to locate accurately and mark the present line to avoid hitting it. A 1-metre separation distance would be maintained between the old and new pipelines, and although depressuring the existing line during construction was not planned, it had not been entirely ruled out. Depressuring would mean that the system would have to be shut down, and APPLE was not in favour of doing this if it could be avoided.

Views of the Interveners

Mr. Seiferling was concerned about the possibility of product spillage on his land, and the potential for contamination of his drinking water supply. He questioned the applicant at length on its intended corrosion precautions, particularly at the Little Lonepine Creek, and inquired into the condition of the existing pipeline through his property. He was also concerned about the increased risk of crossing sour gas pipelines with the new line, and asked whether the applicant had considered re-routing it around an existing gas field.

As mentioned earlier, Daon's opinion was that it would be safer to re-route the pipeline around, rather than diagonally through, the Project 80 area. It cited the Mill Woods incident in 1979 as an example of the type of potential danger to people living in an urban residential area. Daon said that the presence of a new line such as the one proposed by APPLE, coupled with the existence of the present line would create a great deal of fear in the minds of the public, and strongly recommended that the loop line be disallowed through the area.

Views of the Board

The Board is satisfied that the design of the proposed pipeline complies with the pipeline regulations and the applicable codes and standards. It has approved the technical aspects of the application, and is satisfied that the safety measures to be incorporated in the system provide as much protection as is necessary to ensure that a major rupture of the line would be unlikely and if one occurred its effects would be minimized. The Board is cognizant of the successful operating history of the present system, and believes that a new line, as part of this system, could function on a similar basis.

The Board is sympathetic to Mr. Seiferling's concerns regarding possible contamination of his drinking water supply, but believes that the pipeline design constraints, the leak detection equipment and methods proposed by APPLE, and the rapid response-time to shutdown conditions in the event of a pipeline rupture provide an acceptable level of safety. The Board is also satisfied, on the basis of the applicant's evidence, that the issues of corrosion protection and pipeline crossings raised by Mr. Seiferling would be adequately handled as part of construction and operating practices.

Regarding the safety concerns expressed by Daon, the Board is aware of the implications to future subdivisions arising from the Mill Woods incident. While it is not convinced that similar mishaps are inevitable, and recognizing the dissimilarity of product characteristics in the two pipeline systems, the Board nevertheless believes it should pursue alternative route proposals around potential urban residential areas where possible.

5 CONCLUSIONS

The Board recognizes an existing shortfall in refinery product supply in southern Alberta. This shortfall will be temporarily alleviated by the recently approved Turbo refinery. Notwithstanding the apparent ability of existing facilities, in conjunction with the Turbo refinery, to handle anticipated demand for refined products for a few years beyond the planned completion date of the APPLE loop, the Board believes that for reasons of long-term security of supply, operating flexibility, and economics, such a loop should be permitted now. As the Board sees it, this would be in accordance with economic, orderly, and efficient development of pipeline facilities in Alberta, and would be in the public interest.

The Board generally agrees with the applicant's criteria for route selection, recognizing that for most of the route the proposed line would follow an existing pipeline right of way. Route modifications should be made around the gravel deposits in the County of Lacombe No. 14; the residential development near Watelet Lake; and the Ardley, Patience, and Falun coal reserves, and approval of routes through these locations should be deferred, pending applications for route modifications. Approval of the portion of route through the Edmonton region should also be deferred pending further consideration of alternative routes.

The Board is satisfied that the proposed pipeline design and safety precautions are in accordance with the latest standards and technology, and that the transportation of refined hydrocarbon products through such a line represents the safest means of moving these products from Edmonton to Calgary.

6 DECISION

The Board grants, in part, the application by Alberta Products Pipe Line Ltd. to construct a pipeline from legal subdivision 10-4-53-23 W4M to legal subdivision 13-15-23-29 W4M. For the reasons set out in sections 3 and 6 of this report, the Board denies, without prejudice, the application by Alberta Products Pipe Line Ltd. on the following portions of line:

(a) from legal subdivision 10-4-53-23 W4M to the south boundary of township 50-25 W4M;

(b) from the north boundary of township 48-25 W4M to the south boundary of township 44-26 W4M; and

(c) from the north boundary of township 41-27 W4M to the south boundary of township 40-27 W4M.

The Board is requesting the approval of the Minister of the Environment, and his consent respecting the use of a Restricted Development Area. If received, the appropriate permit to construct the approved portions of line will be issued to Alberta Products Pipe Line Ltd. in due course, and will be subject to conditions requiring the applicant to submit for Board approval specific details of

- follow-up actions to the recommendations contained in the Hardy Associates (1978) Ltd. environmental report,

- construction procedures through Calgary, prior to commencement of construction, and

- the electro-magnetic base survey results, prior to commencement of operations.

Because of the contentious issues that arose during the hearing concerning the portion of route through the area described in item (a), the Board is prepared to consider a new application from Alberta Products Pipe Line Ltd. which investigates in detail all reasonable route alternatives in the area, and takes into account the advantages and disadvantages of each.

For the pipeline route through the areas described in items (b) and (c) the Board is prepared to consider application(s) for appropriate route modifications around the gravel deposits, coal deposits, and urban residential areas identified in this report. It would expect to issue a separate permit(s) for any approved route changes.

ISSUED at Calgary, Alberta, on 19 December 1980.

ENERGY RESOURCES CONSERVATION BOARD

G J DeSorcy

G. J. DeSorcy, P.Eng.
Vice Chairman

N Strom

N. Strom, P.Eng.
Board Member

R G Evans

R. G. Evans, P.Eng.
Acting Board Member

ENERGY RESOURCES CONSERVATION BOARD
Calgary, Alberta

NOVA, AN ALBERTA CORPORATION
PERMIT TO CONSTRUCT
KIRBY LATERAL

Decision 80-31
Application 800449

1 INTRODUCTION

1.1 The Application

On 9 June 1980 The Alberta Gas Trunk Line Company Limited, now named NOVA, An Alberta Corporation (Nova, the applicant), applied to the Energy Resources Conservation Board (Application 800449, under The Pipeline Act, 1975), for a permit to construct a natural gas pipeline from the Kirby area to Nova's mainline at Hanmore as shown on the map attached. The pipeline comprises:

(a) 8.1 kilometres (km) of 219.1 millimetre (mm) pipe from legal subdivision 9 of section 25, township 73, range 5, west of the 4th meridian to Lsd 10-29-73-5 W4M,

(b) 5.6 km of 219.1 mm pipe from Lsd 18-8-74-5 W4M to Lsd 10-29-73-5 W4M, and

(c) 181.1 km of 406.4 mm pipe from Lsd 10-29-73-5 W4M to Lsd 1-36-62-18 W4M.

1.2 The Hearing

A public hearing of the application took place in Calgary, Alberta, on 18 November 1980 before a division of the Board comprised of V. Millard, C. J. Goodman, P.Eng., and Mr. A. Jah of the Public Utilities Board appointed as an acting Board Member. Those who participated at the hearing are listed in the following table.

THOSE WHO APPEARED AT THE HEARING

Principals and Representatives (Abbreviations Used in Report)	Witnesses
NOVA, An Alberta Corporation (Nova) F. R. Foran	V. B. Kromand, P.Eng. D. G. Snyder, P.Eng. G. M. Chernoff, P.Eng. Dr. G. R. Berard, P.Eng. G. S. Brar, P.Eng. C. P. Mason R. Tonge, P.Eng.
Amoco Canada Petroleum Company Limited (Amoco) G. Bough	
Dome Petroleum Limited (Dome) K. C. Fowlie	
Progas Limited (Progas) G. M. Chernoff	
Pan-Alberta Gas Ltd. (Pan-Alberta) K. F. Keeler	
Sulpetro Limited (Sulpetro) D. J. Bobyn	
Alberta Environment R. Dyer Dr. R. Islam	
Energy Resources Conservation Board staff (Board staff) M. Bruni, Board Solicitor G. C. Dunn, P.Eng. A. Cassley, P.Eng.	

1.3 The Issues

The Board considers the issues to be:

(a) need for the facilities,

(b) availability of the gas,

(c) suitability of the route, and

(d) design of the facilities.

2 THE NEED

2.1 Views of the Applicant

Two purchasers, Pan-Alberta and Progas, have requested transportation of new volumes of natural gas from the Kirby and Kirby North areas and, at present, no facility capable of handling these volumes exists in the area. A number of producers are, or will be, constructing plants in the area. The 10-year demand forecast, which was subject to late amendments for the first two years, due to reduced volumes required by Progas, indicates an immediate increase in the total system demand for gas. The applicant has requested an early decision because of a winter construction schedule.

2.2 The Board's Views

The Board has reviewed the application and is satisfied that there is a need for the new facilities. Furthermore, there was no intervention to contest the necessity, capacity, or timing aspects of these facilities.

3 RESERVES AND DELIVERABILITY

3.1 Views of the Applicant

The applicant presented with the application a reserves and deliverability study, prepared by T. Fekete and Associates, Consultants Ltd., covering the Primrose area, in which Kirby and Kirby North are located, and the Wabasca area from which future production is predicted. Supplements to this study updated the reserves information to August 1980.

The study estimated a marketable gas in-place volume of approximately 11 x $10^9 m^3$ for the Kirby, Mills, and Clyde areas. This volume was shown to adequately support a delivery rate in excess of the design flow rate of approximately 4 x $10^6 m^3/d$.

3.2 The Board's Views

The Board generally concurs with the findings of the study and is satisfied that there are sufficient gas reserves and deliverability to justify the proposed pipeline facilities.

4 ROUTE SELECTION AND ENVIRONMENTAL CONCERNS

4.1 Views of the Applicant

An environmental report was filed as part of the application. Five alternate alignments were reviewed using the criteria of biophysical and cultural resources, existing and potential land use, engineering feasibility, and economics. Final route selection involved site-specific information to minimize negative environmental impact, particularly with respect to wildlife habitat, merchantable timber, and river and creek crossings.

The preferred route parallels an existing Nova pipeline for approximately 40 per cent of the route. General measures to mitigate unavoidable and residual impacts were included in the environmental report.

The applicant discussed a number of techniques used for topsoil conservation, one of which would mulch the frozen topsoil with a rotary grinder and then blade it aside with a bulldozer. The applicant confirmed that the technique was experimental and that if it were unsuccessful, double ditching would be used if possible. Nova held to the opinion that in frozen conditions a full depth cut by a rotary ditcher had the least impact. Nova defined "topsoil" to include the "A" horizon and said that the depth to be stripped would be determined by an inspector. The applicant admitted that the inspector may not be trained as a soil specialist.

With regard to the environmental concerns expressed in letters from the Chipeniuk family, the applicant stated its intention to discuss these concerns with the family. The Chipeniuks did not appear at the hearing. The applicant added that its policy was to contact all affected landowners to assess their individual concerns prior to construction.

4.2 Views of the Board

The Board is satisfied that the route applied for will have the least environmental impact of alternatives presented and that it is the most economical in the long term. The Board believes topsoil conservation in agricultural areas to be important, requiring particular and close attention on the part of contract supervisors and inspectors. It expects Nova to take appropriate steps to achieve this objective.

5 SUITABILITY OF DESIGN

5.1 Views of the Applicant

The applicant stated in its application that a capacity of 1770 x 10^3m^3/d was necessary for the 1980-81 gas year and that the design was based on the 1982-83 gas year when volumes of 4002 x 10^3m^3/d were expected. This was confirmed by the company to be necessary even considering the reduction in Progas contract volumes during the first two years of operation. Nova maintained that the same capacity is necessary during the first two years to handle peak loads.

5.2 Views of the Board

The Board has considered the prime case to be the design year 1982-83. Taking into account the reserve deliverability, the Board is of the opinion that the design year capacity of 4002 x 10^3m^3/d, based on a 3-year planning period, is appropriate.

6 THE DECISION

Based on the evidence presented, the Board concludes that the pipelines applied for are necessary and suitable. Accordingly, the Board grants Nova permission to construct the pipelines described in Application 800449. The application will be referred to the Minister of the Environment and to Energy and Natural Resources for their approval with respect to matters of the environment.

ISSUED at Calgary, Alberta, on 22 December 1980.

ENERGY RESOURCES CONSERVATION BOARD

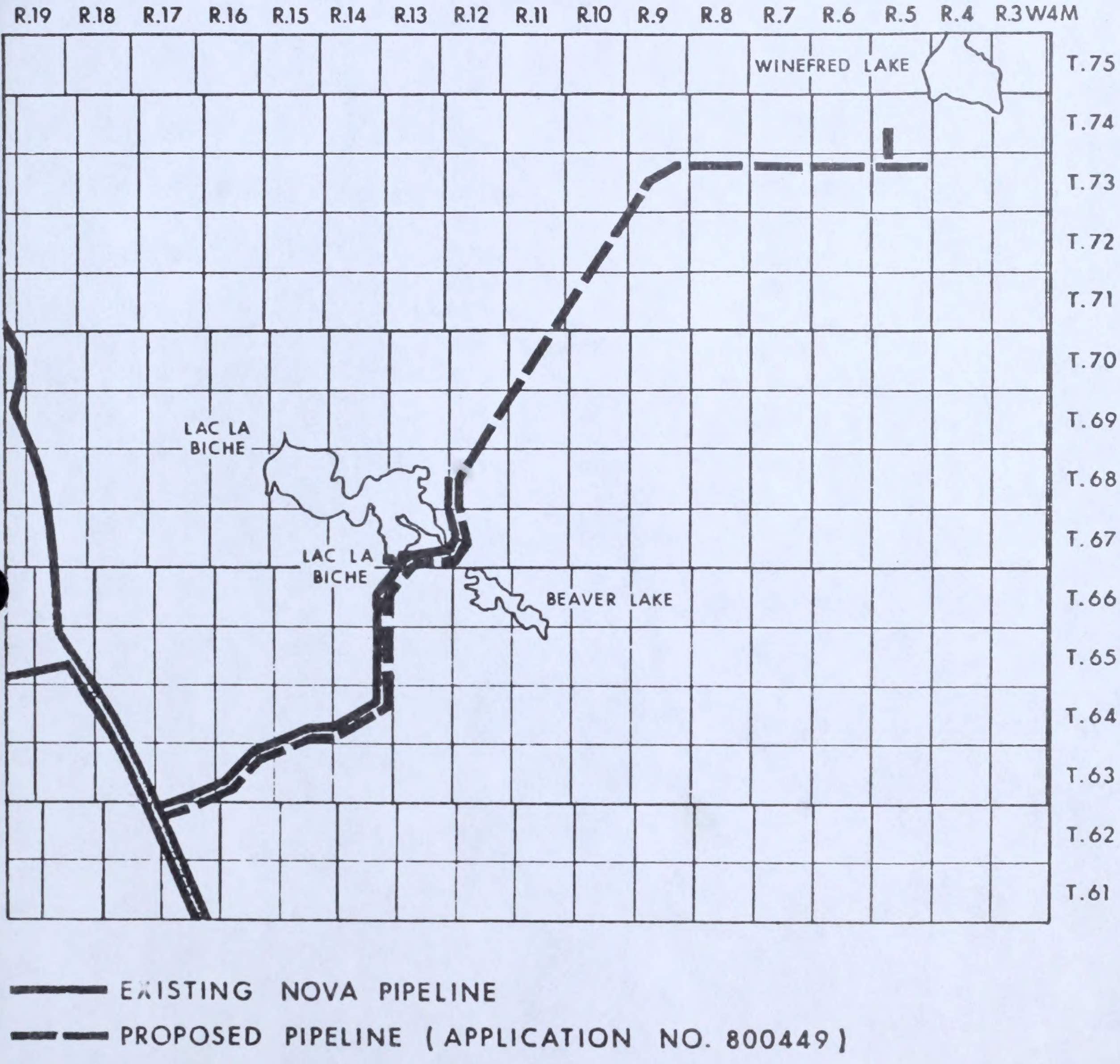
Vern Millard

Vernon Millard
Chairman

C. J. Goodman

C. J. Goodman, P.Eng.
Board Member

A. Jah
Acting Board Member



KIRBY LATERAL FACILITIES